

**THE FOLLOWING ARE THE ENGLISH TRANSLATION  
OF ANNEXES TO THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT (ARTICLE 34):**

**Amended Sheets (Pages 7-8)**

Translation

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PCT/EP2003/008045



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0000053823	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/008045	International filing date (day/month/year) 23 July 2003 (23.07.2003)	Priority date (day/month/year) 08 August 2002 (08.08.2002)
International Patent Classification (IPC) or national classification and IPC C07C 29/42		
Applicant BASF AKTIENGESELLSCHAFT		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 14 January 2004 (14.01.2004)	Date of completion of this report 29 October 2004 (29.10.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/008045

## I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

- ☐ the international application as originally filed.
- ☒ the description, pages 1-6, as originally filed,  
pages \_\_\_\_\_, filed with the demand,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☒ the claims, Nos. 2,3, as originally filed,  
Nos. \_\_\_\_\_, as amended under Article 19,  
Nos. \_\_\_\_\_, filed with the demand,  
Nos. 1, filed with the letter of 02 September 2004 (02.09.2004),  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☐ the drawings, sheets/fig \_\_\_\_\_, as originally filed,  
sheets/fig \_\_\_\_\_, filed with the demand,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

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## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	1-3	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-3	NO
Industrial applicability (IA)	Claims	1-3	YES
	Claims		NO

### 2. Citations and explanations

1. The problem addressed by the application is that of devising an economic process for producing acetylene alcohol which does not present the disadvantages described in the prior art; such as a disproportion between lithium acetylide and dilithium acetylide, very low temperatures or inadequate yields.
2. The process as per claim 1 has the following steps:
  - a) the production of alkyl lithium by reaction of lithium with an alkyl halogenide,
  - b) the formation of lithium acetylide by passing acetylene through the alkyl lithium solution from step a),
  - c) the admixture of ketone.

Page 5 of the description of the application mainly points out that it is surprising that there is no disproportion between lithium acetylide and dilithium acetylide when the present process is carried out at 0-10°C. The present application therefore mainly appears to address the problem of the disproportion between lithium acetylide and dilithium acetylide at higher temperatures.

3. The problem of the formation of dilithium acetylide from lithium acetylide at higher temperatures is already known from the prior art. Document FR-A-2 772 023 (D1) also appears to address this problem (page 3, lines 2-8). According to D1, the solution consists in introducing excess acetylene in a solution of n-BuLi, thus producing a lithium acetylide solution that contains free acetylene and preventing the formation of dilithium acetylide (see D1, page 3, line 21 - page 4, line 6). Document D1 thus describes a process having the following steps: i) the production of a lithium acetylide solution by introduction of acetylene into an alkyl lithium solution (introduction of excess acetylene gas); ii) admixture of ketone (see the table on page 6). These steps correspond to steps b) and c) as per claim 1. Document D1 is regarded as the closest prior art.
4. Claim 1 differs from D1 only in that it states that alkyl lithium is produced by reacting lithium with a C<sub>1-10</sub> alkyl halogenide. Claim 1 thus meets the requirements of PCT Article 33(2).
5. However, the production of alkyl lithium by the reaction of lithium with a C<sub>1-10</sub> alkyl halogenide is already known from the prior art (for example from D2: *Yus et alia*, J. Chem. Soc. Chem. Commun., 1991, pages 398-400). If a person skilled in the art wanted to produce n-BuLi, therefore, he could have used the process described in D2, which includes step a) as per claim 1, without being inventive. Claim 1 thus does not meet the requirements of PCT Article 33(3) because the claimed subject matter is suggested by a combination of D1 and D2.

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6. Claims 2 and 3 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, could meet the requirements of PCT Article 33(3).

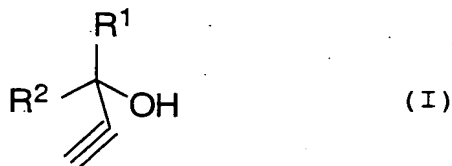
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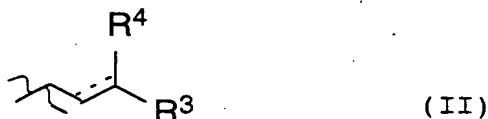
New claims:

1. A process for preparing acetylene alcohols of the general  
5 formula I



where

- 15 R<sup>1</sup> and R<sup>2</sup> may be the same or different and are each independently a saturated or a mono- or polyunsaturated C<sub>1</sub>-C<sub>30</sub>-alkyl, aryl, cycloalkylalkyl or cycloalkyl radical, each of which may optionally be substituted, or a group of  
20 the general formula (II)



where

- 30 R<sup>3</sup> and R<sup>4</sup> may be the same or different and are each independently hydrogen or a saturated or a mono- or polyunsaturated C<sub>1</sub>-C<sub>30</sub>-alkyl, aryl, cycloalkylalkyl or cycloalkyl radical, each of which may optionally be substituted, and the dashed line may represent an additional double bond,

- 35 by monoethynylating a ketone of the general formula R<sup>1</sup>-CO-R<sup>2</sup> by

- 40 (a) reacting lithium with a C<sub>1</sub>-C<sub>10</sub>-alkyl halide  
(b) feeding in acetylene gas  
(c) adding the ketone.

2. A process as claimed in claim 1, wherein the reaction of  
45 lithium with the C<sub>1</sub>-C<sub>10</sub>-alkyl halide is carried out in the presence of catalytic amounts of naphthalene or 4,4'-di-tert-butylbiphenyl.

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3. A process as claimed in claim 1 or 2, wherein the ketone used is selected from the group of acetone, methyl vinyl ketone,  $\beta$ -ionone, tetrahydrogeranylacetone, 6-methylheptanone, hexahydrofarnesylacetone, diethyl ketone, methyl ethyl ketone, cyclohexanone, methyl t-butyl ketone, pseudoionone, methylhexenone and H-geranylacetone.

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